KHUDAYBERGENOV, E.B.

Licorice resources in the Chu Valley. Trudy Inst. bot. AN Kazakh. SSR 21:204-237 '65. (MIRA 18:12)

KHUDAYBERGENOV, E.B.

Distribution and resources of licorice in the south of Kazakhstan
Trudy Inst.bot.AN Kazakh.SSR 17:181-188 '63. (MIRA 17:3)

KHUDAYBERGANOV, K.

Optimum planning of railroad stations. Vop. vych. mat. i tekh. no.3:100-110 '64. (MIRA 18:9)

KHUDAYBERGANOV, Razyk

Athamantha macrophylla (Rgl. et Schmalh.), a little known spice plant. Bot. zhur. 46 no.8:1208-1209 Ag '61. (MIRA 15:1)

1. Tashkentskiy pedagogicheskiy institut.
(Spices)

MILOGRADOVA, Ye.I.; KHUDAYBERDYYEVA, R.N; KOSTINA, V.N.

Some data on the biotechnics of Chlorella cultivation in Uzbekistan. Uzb.biol. zhur. 6 no.4:39-41 '62 (MIRA 16:7)

1. Institut botaniki AN UzSSR.
(UZBEKISTAN—ALGAE—CULTURES AND CULTURE MEDIA)

DENISOV, V.F., prof., doktor sel'skokhoz.nauk; KHUDAYBERGENOV, D.K., red.; LOBANTSEV, A.S., tekhred.

[Recent developments in breeding cattle for high butterfat production] Novoe v selektsii krupnogo rogatogo skota po zhirnomolochnosti. Frunze, Kirgizskii sel'khoz.in-t, 1960. 47 p. (MIRA 14:4)

(Dairy cattle breeding) (Butterfat)

LUSHPA, O.U., KHUDAYBERGENOV, E.B.

Honey plants from river-botton forests of the Syr Dar'ya. Vest.AN Kazakh.SSR 16 no.7:101-102 Jl '60. (MIRA 13:8)
(Syr Dar'ya Valley--Honey plants)

AGEYEVA, N.T.; KHUDAYBERGENOV, E.B.

Artemisia terrae albae H. Krasch in the Mangyshlak Peninsula. Izv. AN Kaz.Ser.bot.i pochv. no.1:83-88 '62. (MIRA 15:5)
(Mangyshlak Peninsula—Wormwood)

KHUDAYBERGENOV, E.B.

Resources and distribution of licorice in the middle course of the Syr Darya River. Trudy Inst. bot. AN Kazakh. SSR 13:205-241 '62. (MIRA 15:12)

(Syr Darya Valley--Licorice)

KHUDAYBERGANOV, R., Cand Biol Sci -- (diss) "Biology of capers and prospects for cultivation." Tashkent, 1959. 16 pp; (Academy of Sciences Uzbek SSR, Inst of Botany); 200 copies; price not given; (KL, 17-60, 149)

USSR / Farm Animals. Small Horned Stock Q-3

Abs Jour: Ref Zhur-Biol., No 3, 1958, 12106

Author : Khudaybergenov D. K.
Inst :
Title : The Fattening of Sheep on Industrial Residues (Otkorm ovets na otkhodakh promyshlennykh predpriyatiy)

Orig Pub: Tr. Kirg. s.-kh. in-ta, 1956, vyp. 9, 101-105

Abstract: In the intense fattening of sheep it was found that feeding them 8 to 13 kg. of beet pulp mixed with coarse barley grist, cotton cake flour, straw, alfalfa, and cotton husk, produced positive results. After a period of 25 to 30 days the sheep were attaining an above-average and high-fat condition with weight increase of 8 to 8.5 kg. Basically, the weight increase was achieved through the fat

Card 1/2

AGEYEVA, N.T.; KHUDAYBERGENOV, E.B.

Wormwood pastures of the right bank of the Ural River in West Kazakhstan Province. Izv.AN Kazakh.SSR.Ser.bot.i pochv. no.1: 47-57 '60. (MIRA 13:6)
(West Kazakhstan Province--Botany--Ecology)

MATYUSHENKO, A.N.; KHUDAYBERGENOV, E.B.

Characteristics of pastures on northern slopes of the Ketmen' Range. Trudy Alma-At.bot.sada 5:83-92 '60.

(MIRA 13:6)

(Ketmen' Range--Pastures and meadows)

KHUDAYBERGENOVA, Z.

GURVICH, L.G.; MAMATKULOV, R.; KHUDAYBERGENOVA, Z.

Tables for conversion of scattering angles and differential scattering cross sections used in the transition from the inertia center system to the observer's system. Trudy FTI AN Uz. SSR 6:62-71 '55. (MLRA 9:12)

(Particles, Elementary--Scattering)

KHUDAYDATOV, B.R.

Semiotics of lesions of the inferior olive in the topical diagnosis of diseases of the medulla oblongata. Zhur. nevr. i psikh. 65 no.2:168-173 '65. (MIRA 18:9)

1. Otdel po izucheniyu razvitiya mozga pri vrozhdennykh i nasledstvennykh zabolevaniyakh (zaveduyushchiy - prof. B.N. Klosovskiy) Instituta pediatrii (direktor - dotsent M.Ya. Studenikin) AMN SSSR, Moskva.

KREYMER, M.L.; GAZIZOV, R.Kh.; BIKRIMIROV, F.S.; KHUDAYDATOVA, L.B.; ILEMBITOVA, R.N.

Improving the quality and increasing the recovery of a 62—85°C gasoline fraction for use as a raw material for producing benzene. Trudy BashNII NP no.6:95-101 '63.
(MIRA 17:5)

KHUDAYEV, S. I.

USSR / Human and Animal Physiology. Metabolism. T

Abs Jour: Ref Zhur-Biol., No 9, 1958, 41091.

Author : Khudayev, S. I.
Inst : Alma-Ata Zooveterinary Institute.
Title : Changes of Cholinesterase Activity and Magnesium Concentration in the Blood Caused by Painful Stimulation of the Interroreceptor of the Stomach in Horses.

Orig Pub: Tr. Alma-Atinsk. zoovet. in-ta, 1956, 9, 152-168.

Abstract: No Abstract.

Card 1/1

26

KHUDAYEV, S. I., Cand of Vet Sci -- (diss) "Changes of certain biological and biochemical indicies of blood in experimental and spontaneous "Colic" in horses in light of the use of pain-killing and sedative method of treatment." Alma-Ata, 1957, 16 pp (Alma-Ata Zooveterinary Institute) (KL, 32-57, 96)

KHUDAYEV, S.I., aspirant

Change in the cholinesterase activity and magnesium concentration of the blood during pain stimulation of gastric interceptors in horses. Trudy AZVI 9:152-158 '56. (MIRA 15:4)

1. Iz kafedry chastnoy patologii i terapii nezaraznykh bolezney (zav. kafedroy - chlen-korrespondent AN KazSSR, zasluzhennyy deyatel' nauki KazSSR, doktor prof. Ya.I.Kleynbok) Alma-Atinskogo zooveterinarnogo instituta.

(Cholinesterrase) (Magnesium in the body)
(Stomach--Inervation) (Horses--Physiology)

KHUDAYKULIYEV, A. Cand Biol Sci -- (diss) "The Effect of the Pollinating and Cultivating Conditions of Cotton Hybrids of ~~on their~~ ~~HAXXXKKXX~~ Heredity Transmission" ~~Make-Up~~." Ashkhabad, 1957. 21 pp 22 ~~dxx~~ cm. (Academy of Sciences Turkmen SSR, ~~XXXXXX~~ Department of Biological and Agricultural Sciences), 125 copies (KL, 19-57, 87)

KHUDAYKULOV, Kh.

Samarkand as an industrial center. Nauch. trudy TashGU no. 213 Geography no. 24:72-81 '63. (MIRA 17:5) [illegible], S. M.

[illegible], S. M.: "The weed plants in the rice fields of Tashkent oasis and measures to combat them." Min Higher Education USSR. Uzbek State Univ imeni Alisher Navoi. Samarkand, 1956. (Dissertation for the Degree of Candidate in Biological Science.)

Knizhnaya letopis', No. 30, 1956. Moscow.

LADYZHENSKAYA, K.I.; KHUDAYKULOV, S.M.

Spore-bearing of Ricciocarpus natans (L.) Corda. Bot.mat.Otd. spor.rast. 11:182-186 Ja '56. (MLRA 9:11)
(Hepaticae)

SOV/165-58-6-21/24

AUTHOR: Khudaykulyev, M.

TITLE: The Syntax Functions of the Imitative Words in the Sentence (Based Upon the Materials of the Turkmenian Language)

PERIODICAL: Izvestiya Akademii nauk Turkmenskoy SSR, 1958, Nr 6, pp 111-114 (USSR)

ABSTRACT: The problem was examined for the first time in reference to the Turkmenian language. The imitative words are used preferably as substantive and verbal definitions and can, therefore, in contrast to exclamatory words, possess every function in the sentence. The citations quoted stem from contemporary writers.
There are 7 Soviet references.

ASSOCIATION: Institut yazyka i literatury AN Turkmenskoy SSR (Institute of

Card 1/2

KHUDAYNAZAROV, G.

KHUDAYNAZAROV, G.

Preliminary data on the bituminosity of Jurassic deposits in the western part of the Greater Balkhan. Izv.AN Turk. SSR no.5:[illegible]50 (MIRA 10:10)

1.Institut geologii AN Turkmenskoy SSR. (Balkhan--Bitumen)

KHUDAYNAZAROV, G.

Cress-bedding and seme landslide structures in Bathonian deposits of the Greater Balkhan. Izv. AN Turk. SSR no.5:23-29 '58. (MIRA 11:12)

1. Institut geologii AN Turkmenskoy SSR.
(Balkhan range--Geology)

KHUDAYNAZAROV, G.; KOGAN, V.

Bitumens in the Gaurdak sulfur deposit. Izv. AN Turk. SSR no.5: 76-77 '58. (MIRA 11:12)

1.Institut geologii AN Turkmenskoy SSR.
(Gaurdak--Bitumen)

KHUDAYNAZAROV, G.

Ripple marks in middle Jurassic sediments of the Greater Balkhan Range. Sov.geol. 2 no.7:52-59 Jl '59.
(MIRA 13:1)

1. Institut geologii Akademii nauk Turkmenskoy SSR.
(Balkhan Range--Ripple marks)

S/165/61/000/001/004/007
A104/A127

AUTHORS: Ptushkin, E.I., Tiunov, K.V., Khudaynazarov, G.

TITLE: Tectonic features of the Bol'shoy Balkhan

PERIODICAL: Akademiya nauk Turkmenskoy SSR. Izvestiya. Seriya fiziko-tekhnicheskikh, khimicheskikh i geologicheskikh nauk, no. 1, 1961, 51 - 58

TEXT: Since 1954 the Upravleniya geologii i okhrany nedr pri Sovete Ministrov Turkmenskoy SSR (Administration of Geology and Protection of Mineral Resources of the Soviet of Ministers of Turkmenskaya SSR) has been conducting geological surveys of the Bol'shoy Balkhan and neighbouring areas to determine gas and oil potential of West Turkmenistan. The main tectonic elements under survey were the Bol'shebalkhanskaya anticline, the Severobalkhanskiy foot hill depression and the southern cavity of the Bol'shoy Balkhan. Apart from these there are also a number of minor folds, e.g. the brakhyanticline composed of Neocomian rocks on the plateau near Eshekel, which has a wall gradient of 15-25°; in the west this brakhy anticline closes somewhere near the Eshekel meridian. Three outcrops of Mesoyurassic deposits in the area of a non-eroded Neocomian anticline between the Balkui and Danata wells, and the unconformable stratification of the

Card 1/6

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000722420001-3"

Tectonic features of the Bol'shoy Balkhan

S/165/61/000/001/004/007
A104/A127

Neocomian stage, indicate the presence of pre-cretaceous upheavals in the area of Sekidag. One of these is known as the Balkuinskaya brakhyanticline. A characteristic of the pre-cretaceous folds of the Bol'shoy Balkhan are: medium range, symmetric formation, completeness and strictly latitudinal expansion. Disjunctive dislocations and folds were noted chiefly in cretaceous and paleogene deposits. Folds of varying dimensions were discovered on the northern wall of the anticline near Kyariz-Oglanly and on the southern wall near the synacline Duzmergen. One of the largest is the Koshaguyskiy fold, which intersects the southern wall of the Bol'shebalkhanskaya anticline in southeastern direction. There are three types of disjunctive dislocation which complicated the formation of some parts of the Bol'shebalkhanskaya anticline: 1) longitudinal with subtypes: overthrusts and upheavals, broken folds, interstratum sliding; 2) latitudinal; 3) diagonal. Some of these faulty dislocations are: the steep overthrust in the western part of the area has the greatest vertical range and expands between the Borzhokly and Karayman wells. The stratographic range of relative wall dislocations reaches 1,500 m and above. Drilled wells reveal that the inclination angle of the fault fissure plane at the granite outcrop Karayman exceeds 55° and at the outcrop of tuffs of quartzitic porphyry 75°. Among longitudinal faulty disturbances there are also disjunctive dislocations of the "interstratum sliding" type.

Card 2/6

Tectonic features of the Bol'shoy Balkhan

S/165/61/000/001/004/007
A104/A127

Some of the largest latitudinal upheavals, described by E.A. Repman and K.K. Mashrykov, located on the southern wall of the Shorlinskaya synacline, their stratigraphic range reaching 120 m. To the latitudinal dislocations belong numerous ruptures in the Neocomian stratum of the northern wall of the Bol'shebalkhanskaya anticline; their expansion does not exceed 100-150 m. In the southern part of the anticlinar fold there are fewer dislocations though sometimes of greater expansion. Outstanding among these are the dislocations at the 480 m throw (west of Danat well); 1,097 m (northwest of the Umbil'muz spring and 1,629 m south of the Meulam spring, on the eastern edge of the Dashlydere gorge, western of Porsyayman. Numerous latitudinal dislocations were observed at the southern wall of the Bol'shebalkhanskaya anticline to the north of Nebit-Dag, described by N.P. Luppov [Ref. 3: "Osnovnyye cherty geologicheskoy struktury B. Balkhana-Kuba-Daga i istoriyayeye tektonicheskogo razvitiya" (Basic features of the geological formation of the Bol'shoy Balkhan - Kub Dag districts and the history of its tectonic development). Izvestiya AN TSSR, no. 4, 1952] and R.G. Konstant. One of the largest faults is the break formed in the Lammaburunskaya brakhyanticline. Investigations of fissure tectonics revealed that the majority had a northwest (320-345°) and southwest (35-60°) expansion. Fissures expanding at 35-60° and 290-310° were partly mineralized. In 1958 a well

Card 3/6

has been drilled 11 km to the north-northeast from the outcrops of paleogene deposits near the Oglangy village, located in the foot hill depression northern of the Bol'shebalkhanskaya anticline; at 504 m were revealed upper-cretaceous deposits of 189 m thickness (Danish stratum). The well slope has a depth of 693m. Beginning at 142 m under a layer of unbroken proluvial quaternary plyocene deposits were disclosed sea akchagyl (48 m), paleogene (314 m), Danish stratum (18 m), maastricht (69 m) and Campan (102). The southern depression of the Bol'shoy Balkhan forms the northern border of the Pribalkhanskaya depression, which consists of caynozoic deposits. Wells drilled on the Balaychenskaya texture bench revealed a cover of cretaceous deposits at 1,330-1,900 m. Red neogenic layers rest transgressively on these. Maximum stratification depth of cretaceous rocks in the Inter-Balkhan depression is 2,500 m; as stated earlier by V.V. Buklin, a disjunctive dislocation stretches between Karadzhadag and the southern slopes of Bol'shoy Balkhan. Core drilling carried out in 1957-58 provided additional data on akchagyl deposits in the southwestern region of this area. Akchagyl was first disclosed by T.V. Tiunov [Ref. 12: "Novyye dannyye ob akchagil'skikh otlozheniyakh Bol'shogo Balkhana" (Recent information on akchagyl deposits of the Bol'shoy Balkhan), Izvestiya AN TSSR, no. 6, 1958] at 5 km west-southwest of the Uchgez spring at absolute marks +120, +140 m. 15 km westwards from this point in a well

Tectonic features of the Bol'shoy Balkhan

S/165/61/000/001/004/007
A104/A127

located 8 km north of Molla-Kara at absolute mark 503 m. The comparison of the stratification of basic akchagyl in the area of Uchgez and in the Molla-Kara well indicate the intensity of the sinking of the Cisbalkhanskiy region of the West Turkmenistan depression. Conclusions: There are two distinctive phases in the development of the Bol'shoy Balkhan, i.e. pre-cretaceous and post-paleogene. As a result of anti-cretaceous movement on the territory of the present Bol'shebalkhanskaya anticline, Yurassic stages formed brakhyanticline folds. The post-paleogene folds formed the Bol'shebalkhanskaya anticline as it is today. Unlike pre-cretaceous movements, the former led to a slight displacement of the anticlinal axis from latitudinal towards northwest, particularly in the western region, and to numerous disjunctive dislocations and faults. The total width of Yurassic, Cretaceous and Paleogene deposits of the Bol'shoy Balkhan exceeds 7.5 km. Such considerable width, age and intensity of dislocation are unusual in stage formations. In certain parts of (Soviet) Central Asia, the Ciscaspian, North Caucasus and the Iran Yurassic and Cretaceous deposits are oil-bearing. Lithological and environment characteristics of Yurassic and Cretaceous deposits, the consistency of basic complexes and numerous brakhyanticlinal folds provide favourable conditions for the formation and preservation of large oil and gas deposits. Consequently, the Mesozoic deposits in the regions adjoining the Bol'-

Card 5/6

shoy Balkhan (particularly in the north) should be considered as potential fields of oil and gas prospecting. There are 2 figures and 12 Soviet-bloc references.

ASSOCIATION: Upravleniye geologii i okhrany nedr pri Sovete Ministrov Turkmenskoy SSR (Administration of Geology and Protection of Mineral Resources of the Soviet of Ministers of Turkmenskaya SSR)

SUBMITTED: July 30, 1960

KHUDAYNAZAROV, G.; TIUNOV, K.V.

Some results of the study of Jurassic argillite strata of the Greater Balkhan according to the data of borings. Izv.AN Turk. SSR.Ser.fiz.-tekh., khim.i geol.nauk no.1:96-99 '61. (MIRA 14:8)

1. Upravleniye geologii i okhrany nedr pri Sovete Ministrov Turkmenskoy SSR i Institut geologii AN Turkmenskoy SSR.
(Greater Balkhan Range—Argillite)

KHUDAYNAZAROVA, S., Cand Vet Sci -- (diss) "Blood changes in calves affected with theileriasis during chemotherapy in combination with pathogenetic therapy." Ashkhabad, 1957. 20 pp (Min Agr Turkmen SSR, Turkmen Sci Res Inst of Animal Husbandry and Veterinary Medicine), 100 copies (KL, 52-57, 110)

KHUDAYNAZAROVA, S

USSR / Diseases in Animals. Diseases Caused by Protozoa R

Abs Jour: Ref Zhur-Biologiya, No 16, 1958, 74222

Author : Rakhmedov. Ch. R.; Khudaynazarova, S.

Inst : Turkmenian Agricultural Institute

Title : Changes of Red Blood During Milk and Severe Forms of Theileriasis in Cattle

Orig Pub: Tr. Turkm. s.-kh. in-ta, 1957, 9, 297-306

Abstract: No abstract

Card 1/1

L 1389-66 EWT(d) IJP(c)

ACCESSION NR: AR5018961

UR/0044/65/000/007/B046/B047
517.917

22
B

SOURCE: Ref. zh. Matematika, Abs. 7B215

AUTHOR: Khuday-Verenov, M. G. 44,55

TITLE: On a property of limiting cycles of differential equations

CITED SOURCE: Uch. zap. Turkm. un-t, vyp. 28, 1964, 5-10 16,44,55

44,55

TOPIC TAGS: differential equation, stability condition

TRANSLATION: The limiting cycle of the system $x = P(x)$--where x is an n-dimensional vector and $P(x)$ is a vector function having analytic components--is called H-stable (H-unstable) if at each point of the cycle the following inequality holds:

$$y\frac{\partial P}{\partial x}y<0\ (>0). \quad (1)$$

where

$$y=\sum_{i=1}^{n-1} n_i y_i,\ y_i \quad (2)$$

are unit vectors orthogonal to the cycle. It is called roughly stable (roughly unstable) if the inequalities (2) are satisfied for any vectors $\gamma_i (i=1,2,\ldots,n-1)$. It is proved that system (1) having analytic right members does not have roughly

Card 1/2

L 1389-66

ACCESSION NR: AR5018961

O

stable limiting cycles, may have *H*-stable limiting cycles, and--in the region in which inequalities (2) hold--does not have limiting cycles at all. An example is given. An abundance of misprints and the use of notation that is not generally accepted make this paper difficult to read. I. Makarov.

SUB CODE: MA ENCL: 00

KC

Card 2/2

KHUDAZAROV, A.A.

USSR/Pharmacology, Toxicology. Analeptics

U-3

Abs Jour : Ref Zhur - Biol., No 4, 1958, No 17558

Author : Karayev A.I., Khudazarov A.A.
Inst : Not Given - Sector of Physiology, AS Azer SSR
Title : The Distribution Dynamics of Radio-active Phosphorus P32 in Various Divisions of the Central Nervous System Normally and Together with Caffeine and Bromine.

Orig Pub : Dokl. AN AzerbSSR, 1957, 13, No 5, 559-564

Abstract : The intensity of P32 absorption by the Central Nervous System was studied. The tested animals (rabbits) received sodium-caffeine benzoate (100mg/kg subcutaneously) or sodium bromide (100mg/kg intravenously) 20 minutes before the administration of 45 mcurie/kg of $Na_2HP^{32}O_4$. The degree of P32 absorption was determined 1, 3 and 24 hours after the administration. In the control animals the intensity of P32 absorption by various branches of the CNS was unequal and changed with time. The medulla oblongata was the most active. The administration of caffeine decreased the absorption of P32 in the earlier periods of the study (in 1, 3 hours). The authors explain this by the retarded absorption of the phosphate from the

Card : 1/2

Card : 2/2

KARAYEV, A.I.; KHUDAZAROV, A.A.

Dynamics of the distribution of radioactive phosphorus in the organism under normal conditions and following administration of caffeine and bromine. Trudy Sekt.fiziol.AN Azerb.SSR 2:17-27 '58. (MIRA 12:7)
(PHOSPHORUS IN THE BODY) (CAFFEINE) (BROMINE)

KHUDEKOVA, N. D.

10

The addition of hydrogen to acetylene compounds. XXXII. Catalytic hydrogenation of an alcohol with a double and a triple bond. Yu. S. Zal'kind and N. D. Khudekova. *J. Gen. Chem.* (U. S. S. R.) 10, 521-6 (1940); cf. *C. A.* 34, 387[4].—CH_2:CHC:CH, EtBr and Mg with MeEtCO give 77.5-88% MeEtC(OH)C:CCH:CH_2, b_{20} 73-6°, b_{25} 81-3°. When this is hydrogenated over Pt black it easily adds 4 H atoms, then in about double the time it adds 2 more. A very slow reaction with H follows, probably due to reduction of the OH group. When colloidal Pd deposited on starch is used, the addn. of the last 2 H atoms takes 3-4 times as long as addn. of the first 4, and there is no further reaction. Addn. of the first 2 H atoms goes almost entirely on the triple bond, giving a compd. which reacts with maleic anhydride to form crystals m. 136-7°. The next 2 H atoms add to any of the available double bonds, giving a mixt. of unsatd. alcs. When 6 atoms of H have been added, the product is MeEtBuCOH

H. M. Leicester

Lab Org. Chem, Pedagogical Inst in Gertsen

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KHUDEN'KIKH, A.

ABRAMOV, G.; KHUDEN'KIKH, A.

Accounting problems and the analysis of collective farm operation. Bukhg.uchet 14 no.5:22-25 My '57. (MLRA 10:7)
(Collective farms--Accounting)

S/133/63/000/004/008/011
A054/A126

AUTHORS: Pakuleva, V. S., Khuden'kikh, A. A., Barikhin, A. S.

TITLE: Adaptation and improvement of heat treatment of ДИ-1 (DI-1) grade steel

PERIODICAL: Stal', no. 4, 1963, 358 - 360

TEXT: The DI-1 (20Х15Н3МА/20Kh15N3MA) grade having a HB of 3.2 mm after standard heat treatment, displayed cracks upon polishing with abrasives. To eliminate this the metal (180 mm square and 170 mm circular sections) was investigated with a dilatometer and a laboratory electric furnace, to establish the optimum annealing temperature and holding time, so that the required hardness was ensured. It was found that the cracks were mainly caused by inadequate cooling of the specimens prior to being placed in the soaking pits and by the high annealing temperature. The necessary hardness (about 3.5 mm) was obtained with a metal temperature not higher than 100°C. Optimum annealing took place at 650°C. To establish the best cooling method, tests were carried out on the effect of the forging end temperature and cooling rate on austenite transformation.

Card 1/2

The best results were obtained when 450 x 450 mm ingots were cooled in non-heated pits for not less than 72 hours to 50°C, thereupon they were processed with abrasives and put into a pusher type furnace for heating to forging temperature. This must take place not later than 5 days after removal from the pits. The 405-mm diameter circular sections must be air-cooled for a minimum of 24 and a maximum of 72 hours. They should be annealed at 650±10°C with a holding time of 20 hours + 0.9 hour/t of the charge. Next they must be furnace cooled to 200°C at a 30 - 50°C/h rate, followed by air-cooling. 150 - 170 mm square and circular sections should be aircooled for 24-72 hours to maximum 50°C. To ensure a forging end temperature of 950°C, the ingots must be heated to 1,130°C instead of 1,180°C prior to forging. The new heat treatment eliminated the crack formation both in the ingots and the forged sections. There is 1 figure.

ASSOCIATION: Chelyabinskiy metallurgicheskiy zavod (Chelyabinsk Metallurgical Plant)

KOMISSAROV, A.I., inzh.; KHUDEN'KIKH, A.A.

Annealing of rolled shapes at the Chelyabinsk Metallurgical Plant.
Stal' 23 no.4:362-363 Ap '63. (MIRA 16:4)

1. Chelyabinskiy metallurgicheskiy zavod.
(Chelyabinsk—Rolling mills) (Annealing of metals)

L 10449-67 EWT(m)/EWP(t)/ETI IJP(c) JD/DJ

ACC NR: AP6022510 SOURCE CODE: UR/0133/66/000/004/0359/0360

31

AUTHORS: Komissarov, A. I. (Engineer); Khorosh, V. A. (Engineer); Khuden'kikh, A. A. (Engineer)

ORG: Chelyabinsk Metallurgic Plant (Chelyabinskiy metallurgicheskiy zavod)

TITLE: Carbide network in ball-bearing steel and methods for its elimination

SOURCE: Stal', no. 4, 1966, 359-360

TOPIC TAGS: alloy steel, metallurgic research, chromium / ShKh15 alloy steel

ABSTRACT: The effect of the carbon and chromium content and the nature of the thermal treatment of ball-bearing steel on the carbide network index of the steel were determined. The investigation supplements earlier experimental results of the present authors (A. I. Komissarov and A. A. Khuden'kikh, Stal' 1963, No. 4). The specimens were kept in the furnace at 1220—1230C for 16 hours and were annealed at 790—800C for a period of 1 hour/ton of steel. The experimental results are presented in graphs and tables (see Fig. 1). It was found that the most important factor responsible for carbide formation was the carbon content in the steel. The chromium content was of secondary importance. The most effective method for lowering the carbide content of the steel (along with decreasing the carbon content to below 1%) was found to be an increase in the rate of cooling after rolling at temperatures not lower than 820—850C. Normalization from a temperature of 920—900C followed by annealing at 790C

Card 1/2

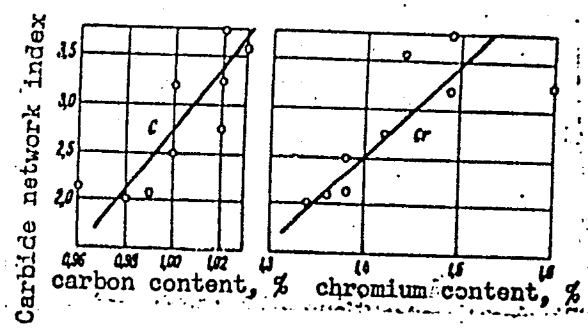
UDC: 669.15-194:669.26

L 10449-67

ACC NR: AP6022510

6

Fig. 1. Influence of the carbon and chromium content on the carbide network index of steel ShKh15 after annealing (rod diameter - 50 mm)



also produces a significant lowering of the carbide content. N. V. Keys, L. D. Kossovskiy, V. S. Pakuleva, Z. A. Tavakina, M. I. Maksimova, and others took part in the experimental work. Orig. art. has: 1 table and 4 graphs.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 009

Card 2/2

LIPCHIN, N.N. (Perm'); OSLON, N.L. (Perm'); SHUBIN, V.N. (Perm'); KHUDEN'KIKH, V.P. (Perm')

Effect of vanadium on the phase recrystallization of steel. Izv. AN SSSR. Met. no.3:140-145 My-Je '65. (MIRA 18:7)

KHUDENKO, A., inzh. (g.Kiyev)

High temperature radiant heating. Zhil.-kom. khoz. 11 no.7:24-25 Jl '61. (MIRA 14:7)

(Radiant heating)

KHUDENKO, A.A.

Heating of industrial buildings by high-temperature heat emitters.
Vod. i san. tekh. no.1:25-27 Ja '61. (MIRA 14:9)
(Radiant heating)

SOV/147-59-2-1/20

AUTHORS: Bespalov, I.V. and Khudenko, B.G.

TITLE: The Structure of the Two-Dimensional Turbulent Wake Behind Non-Streamlined Bodies (Struktura turbulentnogo plosko-parallel'nogo sleda za plokho obtekayemym telom)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1959, Nr 2, pp 3-11 (USSR)

ABSTRACT: Note: The meanings of the indices are as follows:
o - parameters in the undisturbed stream
m - parameters along the axis of the wake.

Non-streamlined (blunt) bodies nowadays are widely used as the flame stabilizers in the combustion chambers of jet engines. Their full utilization depends upon the knowledge of the flow structure behind these bodies. This is the purpose of the present article.
For larger velocities of the flow (in the case of a cylinder for Re > 5. 10^5, see Ref 1) the boundary layer on the body becomes turbulent and so is the wake behind it. This wake has two stable (with reference to mean velocity) and symmetrical regions of circulatory motion directly behind the body which

Card 1/9

SOV/147-59-2-1/20

The Structure of the Two-Dimensional Turbulent Wake Behind Non-Streamlined Bodies

results from the interaction between the active stream and the reversed flow of the turbulent boundary layer (Ref 2). Variations of the velocity of the oncoming flow (and hence variations of the velocity pressure) does not characterize fully everywhere the boundary layer, e.g. on the edges of the body and at some distance downstream behind it an increase of the velocity produces a contraction of the stream tubes, while a decrease in velocity produces stagnation at some point in the boundary layer. Therefore changes in velocity under these conditions result in the summary effect of two different physical phenomena, so that in order to determine the structure of the boundary layer total pressure changes must be known. Experiments discussed here were carried out with flat plates placed broadside to the free stream, cylindrical bodies and double wedge bodies formed by two flat plates. The range of Reynolds numbers was (from

Card 2/9

SOV/147-59-2-1/20

The Structure of the Two-Dimensional Turbulent Wake Behind Non-Streamlined Bodies

0.5 to 2.5). 10^6. Pressure changes were measured by means of a turn Pitot tube which had one tube facing downstream and the other upstream, their reading being denoted by h_1 and h_2, while h_o represents the reading of the Pitot tube in the undisturbed stream. Changes of the flow parameters are expressed by the so-called coefficients of velocity pressures

$$\xi_{дин} = \frac{\Delta P_{дин}}{P_{дин_0}}$$

coefficients of rarefaction $\xi_{CT} = \frac{\Delta P_{CT}}{P_{дин_0}}$

and coefficients of the total pressure loss

$$\xi_{полн} = \frac{\Delta P_{полн}}{P_{дин_0}} = 1 - \frac{h_1}{h_0} = \xi_{CT} + \xi_{дин}$$

Card 3/9

Coordinates x and y on the graphs and diagrams represent the ratios of the actual distances and the half thickness (d) of the body. Experiments show that the wake behind the bodies may be subdivided into 3 different zones: a) the initial zone, where the boundary layer has not yet spread up to the axis of the stream; b) the main zone, where the flow changes have a monotonic character and c) the transitional zone between these two (see Fig 1). The main zone begins where $h_{1m} = 0$. The boundary layer thickness δ in the main and transitional zones is expressed as the dimensionless distance from the wake axis to a point where

$$\xi_{\text{полн}} = \frac{1}{2} \xi_{\text{полн } m}$$

The structure of the wake is shown in Fig 1, where: 1 - undisturbed stream, 2 - boundary layer region, 3 - nucleus of the reversed flow, 4 - inner and

The Structure of the Two-Dimensional Turbulent Wake Behind Non-Streamlined Bodies

5 - outer limit of the boundary layer, 6 - initial zone, 7 - transitional zone and 8 - main zone of the wake. Fig 2 shows that the changes in the total dynamic and static pressures at various stations in the transitional and the main zones of the wake are very similar in character. From Fig 3 it can be seen that the experimental data for the double wedge show that along the axis of the wake $\xi_{\text{полн }m}$, $\xi_{\text{дин }m}$, $\xi_{\text{ст }m}$ and δ do not depend either on the velocity of the free stream or on the dimensions of the body, i.e. the structure of the wake in the above range of Reynolds numbers is a universal one. This conclusion is not unexpected if it is remembered that the geometrically similar flows with fully developed turbulence are also similar dynamically. Fig 4 shows the dependence of the (relative) full pressure losses

$F = \frac{\Delta p_{\text{полн}}}{\Delta p_{\text{полн }m}}$ on the relative coordinate $\eta = \frac{y}{\delta}$ for

SOV/147-59-2-1/20

The Structure of the Two-Dimensional Turbulent Wake Behind Non-Streamlined Bodies

various cross-sections of the wake. Again it is seen that the similarity law holds true though the speed and the size of the body change. This similarity of the flow does not exist in the initial zone of the wake but there is an analogous similarity there for the boundary layer if the relative coordinate is so chosen that it indicates the position of the point not in the wake but in the boundary layer, i.e. if $\eta = \frac{y - \delta_{Я}}{\delta_{СЛ} - \delta_{Я}}$.

Next the authors develop some theoretical relations using the method of Ref 3 (which represent the conservation of the impulse) and of Ref 4 (which are based on the experimental results and assume that the impulse flux is proportional to the transverse gradient of the axial impulse). The last assumption leads to the equation at the bottom of p 7, where Λ is the "transport parameter". In all these relations the temporal mean values are used, as denoted by a bar

Card 6/9

SOV/147-59-2-1/20

The Structure of the Two-Dimensional Turbulent Wake Behind Non-Streamlined Bodies

above the relevant quantities. In Ref 4, the static pressure gradient is not considered but following the line of the analysis adopted by its author the equation of motion can be reduced to that given by Eq (1) where

$$q_{xx}^{\text{ИМП}} = \bar{P}_{CT} + \rho \overline{v_x^2} \quad \text{and} \quad q_{xy}^{\text{ИМП}} = \rho \overline{v_x v_y}$$

the solution of which is of an exponential character. The constants of integration are determined from the boundary conditions (for $y = \infty$ $q_{xx}^{\text{ИМП}} = q_0^{\text{ИМП}}$ and for $y = 0$ $q_{xx}^{\text{ИМП}} = q_{xx\,m}^{\text{ИМП}}$) leading eventually to a function F_1. Since the universal nature of this function is borne by the experiments, Eq (2) must be satisfied, consequently

$$F_1 = \exp\left(-\frac{\eta^2}{2\sigma^2}\right)$$

Card 7/9

Assuming now a simple power relation as given by Eq (3) where k and n are some constants, the same for the

The Structure of the Two-Dimensional Turbulent Wake Behind Non-Streamlined Bodies

whole wake, by Equations 1, 2 and 3, Eq (4) is obtained on the basis of the experiments carried out by the author of this article, this expression can be expressed as $\delta = 1 + 0.059\ (x - 4.5)$ i.e. $n = 1$, $\delta_l = 1$, $l = 4.5$ and $k/\sigma^2 = 0.059$. Finally the author considers the problem of the drag force R and the drag coefficient C_x on the basis of Ref 5 and on the assumption that the mechanical energy along each elementary stream tube is unchanged, i.e. neglecting the shear stresses in the fluid, and finds that the results of this approach are not in good agreement for small x but do not differ much from the experimental data for large values of x. There are 4 figures and 5 references, 3 of which are Soviet, 1 German and 1 English.

Card 8/9

ASSOCIATION: Moskovskiy aviatsionnyy institut, Kafedra AD-1 (Moscow Institute of Aeronautics, 1st Chair of Aircraft Engines)

88004

10.6120
26-2134

S/170/60/003/012/001/015
B019/B056

AUTHOR: Khudenko, B. G.

TITLE: Calculation of the Main Portion of an Aerodynamic Turbulent Flow in a Restricted Stream

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 12, pp. 3 - 10

TEXT: The results of an investigation of the turbulent flow behind non-streamlined bodies of various shapes and sizes, such as flame holders in jet engines, in a restricted plane-parallel stream are presented. On the basis of experimental data, the author suggests formulas for calculating the parameters of the flow in its main portion, i. e., in that part where the boundary layers that have left the edges of the body, have converged, and where the parameters change monotonically along the length of flow. The change in flow velocity is described by a function obtained from the Prandtl-Schlichting equation. Furthermore, expressions are obtained for the flow thickness, the maximum velocity, and the velocity distribution along the length of flow and over its cross section. For these calcula-

Card 1/2

88004

Calculation of the Main Portion of an Aerodynamic Turbulent Flow in a Restricted Stream

S/170/60/003/012/001/015
B019/B056

tions only four constants are necessary: 1) the drag coefficient of the body; 2) the length of the initial portion of the flow; 3) the coefficient of turbulence in the initial portion of the flow; and 4) the coefficient of turbulence in the main portion of the flow. As it turned out, the solution for the thickness of the flow obtained from the Prandtl-Schlichting equation holds only for unrestricted streams at large intervals. G. M. Abramovich and V. M. Folkner are mentioned. There are 4 figures and 4 Soviet references.

ASSOCIATION: Moskovskiy ordena Lenina aviatsionnyy institut im. Sergo Ordzhonikidze, g. Moskva (Moscow "Order of Lenin" Aviation Institute imeni Sergo Ordzhonikidze, Moscow)

SUBMITTED: May 9, 1960

Card 2/2

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S/147/61/000/001/007/016
E022/E135

AUTHORS: Abramovich, G.N., Makarov, I.S., and Khudenko, B.G.

TITLE: Turbulent Wake Behind Aerodynamically Poor (Blunt) Bodies in a Bounded Stream

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1961, No. 1, pp. 61-73

TEXT: The theoretical solution of the processes taking place behind the flame stabilisers (intensity of burning of the mixture etc.) could appreciably ease the problem of designing highly efficient combustion chambers. However, the difficulties in obtaining such theoretical solutions are very great, mainly due to the fact that certain elementary processes of combustion are still not fully understood. In particular, the laws governing the flow of gases immediately behind the blunt bodies are still lacking, in spite of the fact that that region affects very strongly the process of combustion as well as the stability of the flame. The present article presents some experimental investigations of the structure of the turbulent wake behind blunt bodies of different form, placed in a bounded stream and causing blockage

Card 1/13

20598

S/147/61/000/001/007/016
E022/E135

Turbulent Wake Behind Aerodynamically Poor (Blunt) Bodies in a Bounded Stream

of 14% of the cross-sectional area under the conditions approximating to those in the combustion chamber. The shapes investigated are shown in Fig.1, and the object of the experiments was to determine total pressure, static pressure, and the direction of flow over the whole wake caused by these bodies. The tunnel used for the experiments was of the straight-through type closed working section, and two-dimensional flow was simulated in it. The contraction section was designed according to the method of Witoszynski. The working section dimensions were 0.2 x 0.6 x 2 m. The measurements were taken always at the same station while the model was moved along the wind tunnel. The direction of flow (inclination of the stream lines) was measured by means of a three-tube-in-one probe, the probe inclination being adjusted until the side tubes read the same pressure, the middle top tube being used for a rough estimation of the total pressure at a given point. The exact value of the total pressure was then measured by means of a separate probe

Card 2/13

20598

S/147/61/000/001/007/016
E022/E135

Turbulent Wake Behind Aerodynamically Poor (Blunt) Bodies in a Bounded Stream

aligned in the direction of the flow. The static pressure was measured by means of a probe with three holes equally spaced along its periphery. It was found that this type of probe was the most accurate. Pressures were read from the manometers. The drag of a body has a substantial influence on the shape of the wake behind the body. Direct measurement of the drag in an enclosed stream is not easy, and for this reason in the present experiments drag was measured by the Jones method (Refs. 1, 2). The wake boundaries were taken as the lines where the total pressure in the wake was equal to the total pressure in the undisturbed stream. Experimental data were used to evaluate the specific axial component of velocity

$$\bar{u} = \sqrt{\bar{p}_{dyn.}} \cdot \sin \alpha,$$

$\bar{p}_{dyn.}$ being the specific dynamic pressure of the flow (measured dynamic pressure referred to undisturbed flow dynamic pressure). The thickness of the wake was characterised by the transverse

Card 5/13

20598

S/147/61/000/001/007/016
E022/E135

Turbulent Wake Behind Aerodynamically Poor (Blunt) Bodies in a Bounded Stream

coordinate $y_{0.5}$, where $\bar{u} = \bar{u}_{0.5} = \frac{\bar{u}_{max} + \bar{u}_{min}}{2}$

From the experiments it was found that the characteristics of the wakes behind all the bodies examined were qualitatively similar. The authors distinguish two parts of the wake, the initial and the fundamental. In the initial portion the wake is developing; in the fundamental it remains almost unchanged. The velocity changes within the wake are expressed by a function

$$F = \frac{\bar{u}_{max} - \bar{u}}{\bar{u}_{max} - \bar{u}_m}$$

(in which $\bar{u}_m$ represents the velocity along the central line of the flow), and Figs. 6 and 7 show its distribution for all the bodies investigated. Fig.6 refers to the fundamental portion of the wake, and Fig.7 to the initial portion. It will be seen from these figures that the character of the function F is

Card 4/13

20598

S/147/61/000/001/007/016
E022/E135

Turbulent Wake Behind Aerodynamically Poor (Blunt) Bodies in a Bounded Stream

essentially the same for all the bodies, irrespective of the shape of the body and the percentage of blockage of the flow. Thus the authors conclude that this function is the universal function of the wake. Theoretical computations were carried out to evaluate the function F for the case of incompressible fluid. Two different approaches were employed: 1) the "old" theory of Prandtl' (Prandtl'—Schliechting theory) and 2) the "new" theory of Prandtl'. These computational values of F are also shown in Fig.6; the first as a solid line and the second as a dotted line. As can be seen, both the theoretical solutions agree very well with the experimental data. Once the function F is known and the experimental data for $y_{0.1}$ and $y_{0.9}$ are obtained, the thickness of the core $\delta_{я}$, the thickness of the boundary layer δ and the total thickness of the wake $\delta_{CЛ}$ can be deduced from the old Prandtl' theory (see Ref.3), as follows:

$\delta = 1.569(y_{0.1} - y_{0.9})$; $\delta_{я} = y_{0.9} - 0.136\delta$; $\delta_{CЛ} = \delta_{я} + \delta$;

Card 5/13

20598

S/147/61/000/001/007/016
E022/E135

Turbulent Wake Behind Aerodynamically Poor (Blunt) Bodies in a Bounded Stream

$$y_{0.5} = 6\eta + 0.4416.$$

(At $\bar{y} = \bar{y}_{0.1}$ there is $F = 0.1$ and at $\bar{y} = \bar{y}_{0.9}$, $F = 0.9$, etc.). In Figs. 6 and 7 F is given as a function of $\eta = y/\bar{y}_{0.5}$ in the case of the fundamental portion of the wake, and $\eta = (\bar{y} - \bar{y}_{0.9})/(\bar{y}_{0.1} - \bar{y}_{0.9})$ in the case of the initial portion of the wake. Fig.8 shows the experimental values of $\bar{y}_{0.5}$ compared with the theoretical relation $\bar{y}_{0.5} - 6\bar{\eta} = 0.441\bar{6}$ for the plate of different sizes and for the other blunt bodies. It can be seen from the graphs in Fig.8 that in the initial portion of the wake the variation of $\bar{y}_{0.5}$ is of a complex nature and is different for different bodies, being somewhat smoother for the wedge and half-body than for the flat plate. Fig.9 shows the growth of the thickness of the boundary layer in the wake. It can be seen that the boundary layer increases uniformly and has the same character for all the different bodies tested. As the boundary layer grows along the wake, the total thickness of the wake must also grow at

Card 6/13

20598

S/147/61/000/001/007/016
E022/E135

Turbulent Wake Behind Aerodynamically Poor (Blunt) Bodies in a Bounded Stream

first. But the difference in static pressure in the potential flow outside the wake and that in the wake forces the flow back towards the central line and therefore the wake begins to narrow irrespective of the fact that the boundary layer grows still further. Eventually the boundary layers formed at the shoulders of the body meet at the centre of the wake and henceforth the motion of the fluid in the wake is governed by entirely new conditions.

There are 9 figures and 5 references: 4 Soviet and 1 German.

ASSOCIATION: Kafedra 201, Moskovskiy aviatsionnyy institut (Department 201, Moscow Aviation Institute)

SUBMITTED: August 8, 1960

20598
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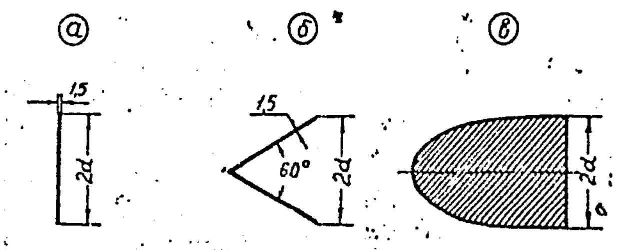
E022/E135

Turbulent Wake Behind Aerodynamically Poor (Blunt) Bodies in a Bounded Stream

Fig.1



Фиг. 1. Формы плохо обтекаемых тел, исследованные в работе.

а) пластинка, установленная поперек потока, б) тело, образованное передними гранями клина (в тексте условно называется „клин"), в) тело, обеспечивающее срыв потока с кромок параллельно оси потока (в тексте условно называется „полутело").

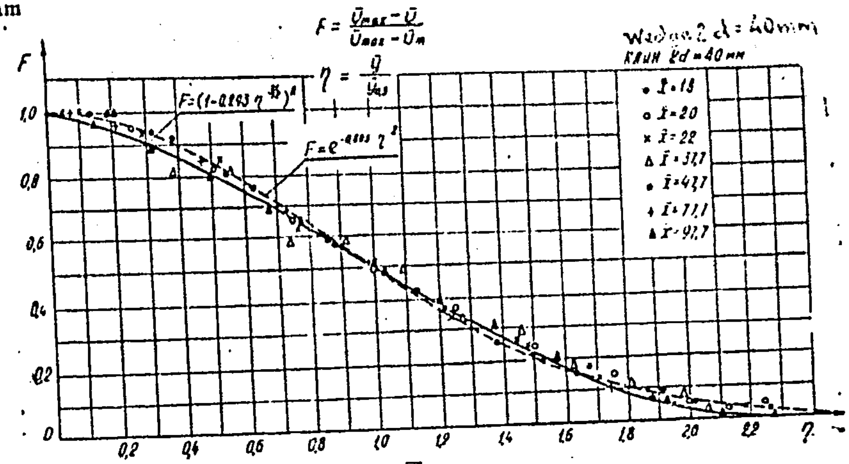
Card 8/13

20598

S/147/61/000/001/007/016
E022/E135

Turbulent Wake Behind Aerodynamically Poor (Blunt) Bodies in a Bounded Stream

Fig.6



Card 9/13

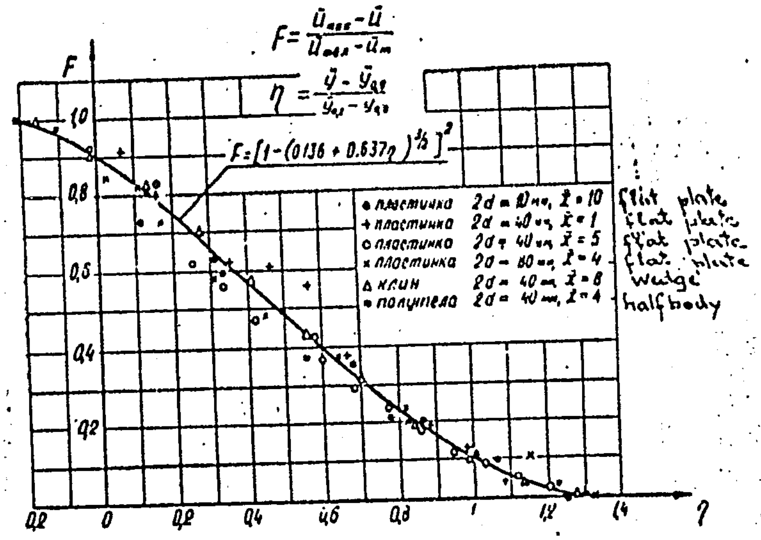
Фиг. 6. Универсальность течения в различных сечениях основного участка следа.

20598

S/147/61/000/001/007/016

Turbulent Wake Behind Aerodynamically.. E022/E135

Fig.7



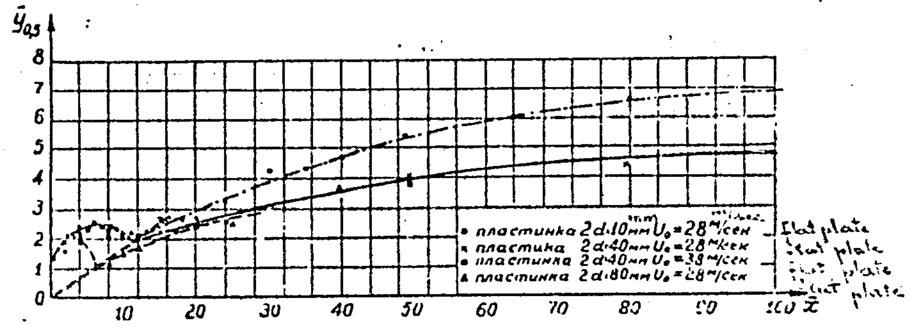
Card 10/13

20598

S/147/61/000/001/007/016

Turbulent Wake Behind Aerodynamically. E022/E135

Fig. 8



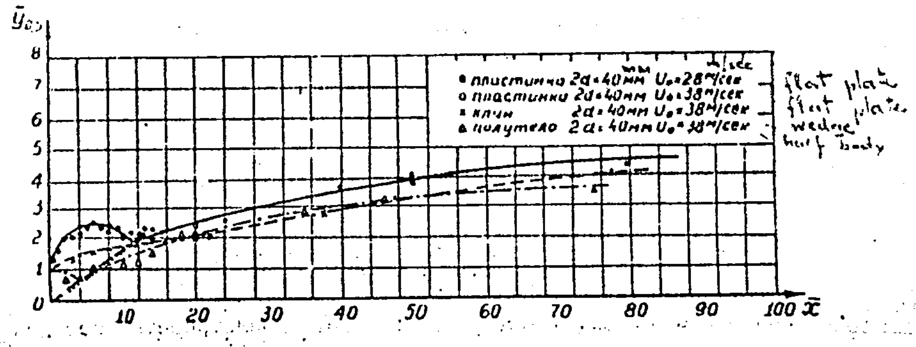
Card 11/13

20598

S/147/61/000/001/007/016

Turbulent Wake Behind Aerodynamically..E022/E135

Fig.8
contd.

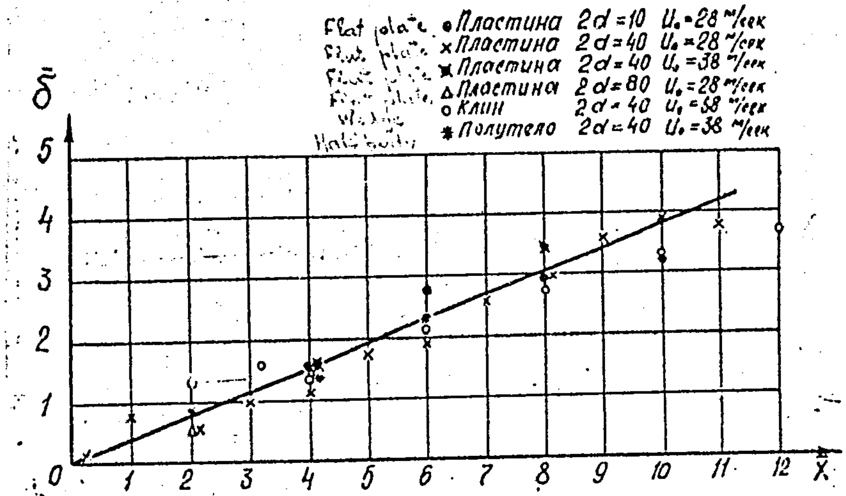


Card 12/13

S/147/61/000/001/007/016

Turbulent Wake Behind Aerodynamically.. E022/E135

Fig. 9



Фиг. 9. Изменение толщины пограничного слоя.

Card 13/13

28821

S/147/61/000/003/011/017
E191/E381

26.1130

AUTHOR: Khudenko, B.G.

TITLE: Application of the potential-flow pattern of an ideal fluid to the analysis of air flow with a reverse-flow region

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, no. 3, 1961, pp. 113 - 126

TEXT: The analysis is concerned with the examination of turbulent exchange processes downstream of the flame stabilizers in a ramjet engine. Insofar as the gas flow is bounded by the combustion-chamber walls, an analysis of such flow is required inside a channel. Helmholtz and Kirchoff have proposed a pattern of free (unbounded) potential flow of an ideal fluid taking account of a separation of the flow at sharp edges of the body surrounded by the flow. This pattern is based on the assumption that the static pressure inside the dead zone between the separated streams is uniform and equal to the static pressure in the undisturbed flow. This uniformity and full recovery of the static pressure is

Card 1/3

28821

S/147/61/000/003/011/017
E191/E381

Application of the ....

arbitrary and conflicts with experimental data. The assumption that the dead-zone static pressure is lower than in the approaching flow, when applied to unbounded flow, has been used to derive the conditions of cavitation in the flow around a flat plate (e.g. Ref. 5 - D.A. Efros - DAN, new series, v. LI, no. 4, 1946). In the present paper the solution of the problem is taken to the point of relationships suitable for computation. The physical conditions of cavitation are not postulated. The flow of an ideal fluid past a plate is examined following Efros and others but without the assumption that the static pressure in the dead zone is the vapour pressure of the liquid. The present pattern is a generalization of the Helmholtz pattern for the case when the static pressure in the dead zone is non-uniform and not equal to the pressure in the undisturbed stream. Flow patterns are illustrated for several values of the dead zone mean static pressure. The actual value remains to be determined. The separation surfaces of the ideal flow pattern become the surfaces of a turbulent boundary layer in a real fluid. Experimental evidence suggests that the exchange

Card 2/3

28821
S/147/61/000/003/011/017
E191/E381

Application of the ....

of turbulent pulsations does not affect the distribution of static pressure characteristic for the generalized Helmholtz pattern. Experimental evidence of pressure distribution in channel flow past a flame-stabilizer is used to obtain a pattern of real flow, which can be made to agree with a generalized Helmholtz pattern. The agreement between the theoretically derived and measured flow quantities is shown to be excellent. M.I. Gurevich is mentioned in the article.
There are 7 figures and 6 Soviet-bloc references.

ASSOCIATION: Kafedra 201, Moskovskiy aviatsionnyy institut, (Department 201, Moscow Aviation Institute)

SUBMITTED: July 22, 1960

Card 3/3

L 12470-65 EWT(d)/EWT(l)/EWP(m)/EWT(m)/EWP(f)/EPR/T-2/FCS(k)/EWA(1) Pd-1/Ps-4
ACCESSION NR: AP4048510 ASD(p)-3/AEDC(a) WW S/0147/64/000/004/0067/0076

AUTHOR: Zhukova, L. A.; Makarov, I. S.; Khudenko, B. G.

TITLE: Mixing of plane-parallel turbulent jets

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 4, 1964, 67-76

TOPIC TAGS: jet mixing, plane parallel jet, turbulent jet, air jet, carbon dioxide admixture

ABSTRACT: Experimental results are presented on the mixing of two plane-parallel turbulent air jets discharging into the atmosphere from square nozzles, 10 x 40 mm in size, at velocities ranging from 20 to 56 m/sec. The distance between the nozzles was varied from 40 to 120 mm. The resulting concentration fields of an admixture gas (CO_2) during the mixing of the two jets was also investigated at a constant distance between the nozzles and at velocities of 20—30 m/sec. To shape the jets, they were discharged into a space enclosed between two plates. The measurements were taken at a distance of 400 mm from the nozzle. The initial jets contained 10% CO_2. The experimental data were treated mathematically in dimensionless parameters to obtain the total pressure, relative velocity, and

Card 1/3

L 12470-65
ACCESSION NR: AP4048510

rarefaction coefficient profiles for the resulting (mixed) flow. It is shown that the velocity distribution in the boundary layer during the mixing of the two jets has a universal character, with respect to both the mixing of two jets and the mixing of a jet with stationary air. During the mixing of the two jets, their axes deviate from the initial direction; this phenomenon is attributed to the ejection of the surrounding air by the jets. The ejection sets the air in motion. Since the turbulent pulsations do not penetrate deep into the air, the air motion has a potential character and occurs without the loss of total pressure. A decreased static pressure (with respect to the atmospheric pressure) was observed between the two jets which leads to deviation of the jets, drawing them closer together. Analysis of the experimental data showed that the equations for calculating the boundaries of a submerged turbulent jet are applicable to the boundaries of two mixing jets. The equation for calculating the change in velocity on the axis of a single turbulent jet is also applicable to the change in velocity on the axes of two mixing jets. Orig. art. has: 6 figures and 10 formulas.

ASSOCIATION: none

Card 2/3

L 12470-65
ACCESSION NR: AP4048510

SUBMITTED: 04May64 ENCL: 00 SUB CODE: ME

NO REF SOV: 002 OTHER: 000 ATD PRESS: 3127

Card 3/3

L 52256-65 EPA/EPF(c)/EPF(n)-2/EPR/EWT(m)/EWA(c) Pr-4/Ps-4/Pt-7/Pu-4 RPL
WW/JW/RM

ACCESSION NR: AP5012094 UR/0147/65/000/002/0121/0131

AUTHOR: Khudenko, B. G.

TITLE: The conditions of ignition in nonthermal activation of combustible mixtures

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1965, 121-131

TOPIC TAGS: combustion, ignition, radiation induced ignition, radiation source

ABSTRACT: A theoretical analysis yielded criteria for determining the intensity of the radiation source required to effect the ignition of a combustible mixture. The calculations were made for a radiation source mounted on the wall of a tube or on a rod placed in the center of the tube containing the combustible mixture. Criteria in terms of effective collision numbers were derived for thermal and chain ignition. Application of the criteria to previous experimental data on the ignition of propane-air and butane-oxygen mixtures with β-radiation sources showed good agreement between experimental and theoretical data. The effect of the radiation source intensity on the burning velocity is also discussed. Orig. art. has: 6 formulas and 6 figures. [PV]

ASSOCIATION: none

Card 1/2

L 52256-65

ACCESSION NR: AP5012094

SUBMITTED: 06Jun61 ENCL: 00 SUB CODE: FP

NO REF SOV: 012 OTHER: 002 ATD PRESS: 4008

Card 2/2

L 37707-65 EWT(m)/EWP(1)/[illegible]

UR/0170/65/008/004/0447/0450

29

B

ACCESSION NR: AP5010068

AUTHOR: Makarov, I. B.; Khudenko, B. G.

TITLE: Mixing of transverse turbulent jets

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 4, 1965, 447-450

TOPIC TAGS: jet mixing, air jet, transverse jet, turbulent jet, nonisothermal jet

ABSTRACT: Velocity, static pressure, and temperature fields were determined experimentally for the flow resulting from mixing two transverse plane parallel turbulent nonisothermal air jets. The cold main air jet was injected into a confined space (between two plates) directly from the atmosphere, the hot secondary air jet (40 and 100C) was injected into the main jet from a preheater at an angle (α) of 30 and 60°. The total injection pressure (gage) for the main jet (h_{01}) was 4, 10, and 40 x 10^2 n/m^2 and for the secondary jet (h_{02}) was 10 and 15 x 10^{-2} n/m^2. The pressure ratio, h_{02}/h_{01}, varied between 0.25 and 3.75. Near the nozzle (x = 10 mm), the velocity field for the resulting flow of the main jet with the hot (40C) jet injected at α = 30° showed two separate streams separated by a zone of reverse streams. The static pressure field showed a decreased pressure at the outer boundaries of the jets, while in the axial region the pressure was

Card 1/2

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L 37707-65

ACCESSION NR: AP5010068

higher than atmospheric. In the reverse flow zone the pressure was lower again. The two streams, which were visible near the nozzles, disappeared with distance to form one stream at a distance of 50-60 mm from the nozzle. The high pressure in the center of the resulting stream at small distances from the nozzle decreased with distance to values below atmospheric pressure. The temperature fields showed that the heat was distributed throughout the resulting flow from the side where the hot jet was injected, i.e., an "intrusion" of the hot jet into the cold jet occurred. This intrusion diminished with distance. The velocity, pressure, and temperature fields for flows resulting from mixing of the main jet with the higher temperature (70C) secondary jet injected at α = 60° were of the same general pattern, but the equalization of pressures and temperatures shifted closer to the nozzles. A better mixing occurred when the velocity of the main jet decreased and that of the secondary jet increased. The pressure ratio increased as mixing occurred earlier (closer to the nozzles). Orig. art. has: 1 figure and 1 table. [PS]

ASSOCIATION: Aviatsionnyy institut im. Sergo Ordzhonikidze, Moscow (Aviation Institute)

SUBMITTED: 06Jun64 ENCL: 00 SUB CODE: ME

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3224

Card 2/2

L 5150-66 EWT(1)/EWP(m)/EWT(m) JD
ACCESSION NR: AP5020941 UR/0170/65/009/002/0180/0186
532.522

44,55
69
66
B

AUTHOR: Makarov, I. S.; Khudenko, B. G. 44,55

TITLE: A system of plane turbulent jets

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 9, no. 2, 1965, 180-186

TOPIC TAGS: gas flow, turbulent flow, turbulent jet, turbulent mixing, carbon dioxide, jet flow, nozzle flow, heat transfer coefficient, heat transfer

ABSTRACT: The paper gives the results of investigations of the mixing of five plane turbulent air jets, flowing out into the atmosphere from slit nozzles (see Fig. 1 of the Enclosure). Identical slits (8 x 30 mm) were placed equidistant from each other (30 mm). The flow rate, temperature, concentration of carbon dioxide, and the direction of flow at various distances from the nozzle cuts (up to 350 mm) were investigated in the resultant flow. The air being fed into nozzles 2 and 4 was heated to a maximum of 80C. It is found that heat exchange in the jet begins long before the boundaries of the individual jets intersect. After the mixing of the jets (cross section - 52 mm) the temperature changes monotonically from

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L 5150-66

ACCESSION NR: AP5020941 0

ASSOCIATION: Aviatsionnyy institut im. Sergo Ordzhonikidze, Moscow (Aviation Institute)

44,55

SUBMITTED: 27Oct64 ENCL: 01 SUB CODE: ME, TD

NO REF SOV: 003 OTHER: 000

Card 2/3

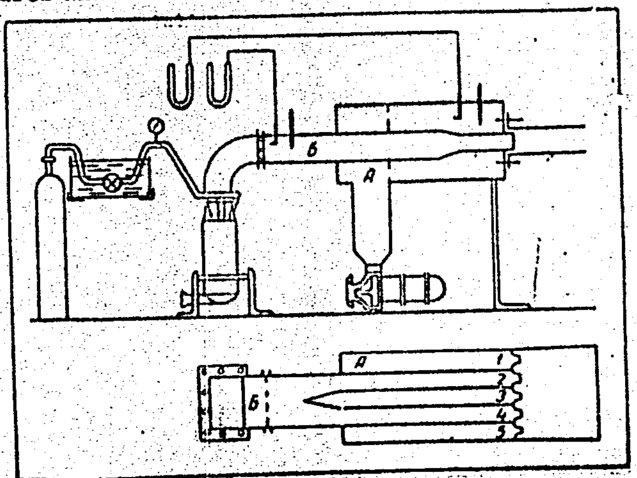
L 5150-66

ACCESSION NR: AP5020941

ENCLOSURE: 01

maximum to minimum. Quantitative processing of the experimental data shows a total analogy in the processes of heat exchange and mass exchange in the system of jets. The differences noted in the characteristics of the individual jets are presented and discussed. Orig. art. has: 4 figures and 1 table.

Fig. 1
Schematic of the experimental device. (A and B are reservoirs; 1, 2, 3, 4, 5 are jets)



Card 3/3

L 9560-66 EWT(1)/EWP(m)/EWT(m)/EWA(d)/FCS(k)/EWA(1) JD

ACC NR: AP5027574 SOURCE CODE: UR/0170/65/009/005/0654/0656

55 55

AUTHOR: Kirillov, V. A.; Khudenko, B. G.

34

55

ORG: Aviation Institute im. S. Ordzhonikidze, Moscow (Aviatsionnyy institut)

B

TITLE: Calculation of the direction of the axis of a resulting flow of the mixing of two turbulent jets

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 9, no. 5, 1965, 654-656

TOPIC TAGS: jet mixing, resulting flow, air jet, inclination angle, turbulent jet

ABSTRACT: A simplified method is presented for calculating the direction of a resulting turbulent gas flow which is formed by the mixing of two turbulent jets. This method does not take into consideration the static pressure in the jet mixing region and interaction with the surrounding gaseous media. For the case where two plane parallel turbulent air jets intersecting at an angle α ($\alpha_1 = 0$ and $\alpha_2 = \alpha$, where subscripts 1 and 2 refer to the first and second jets) are mixed, the following equation is given for calculating the inclination angle of the resulting flow α_Σ:

$$\mathrm{tg}\,\alpha_\Sigma = \frac{\sin\alpha}{\cos\alpha + \Delta p_1/\Delta p_2},$$

where Δp_1 and Δp_2 are the pressure changes in the two air jets. In the case where

Card 1/2

UDC: 532.522

Card 2/2

L 32185-66 EWP(m)/EWT(l)/EWT(m) WW/JW

ACC NR: AP6010859 SOURCE CODE: UR/0421/66/000/001/0154/0158

AUTHOR: Abramovich, G. N. (Moscow); Bakulev, V. I. (Moscow); Makarov, I. S. (Moscow); Khudenko, B. G. (Moscow)

ORG: none

75
B

TITLE: Investigation of a submerged turbulent stream of real gas

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 1, 1966, 154-158

TOPIC TAGS: axisymmetric flow, turbulent flow, real gas, gaseous substance, Prandtl number, nitrogen, LIQUID NITROGEN, CRITICAL PRESSURE

ABSTRACT: The results of the experimental investigation of the axisymmetric flow of liquid nitrogen at supercritical pressure in gaseous nitrogen are presented. The observation of the flow with ordinary and shadowgraph cameras indicates that the liquid flow is distinguished by the absence of droplets at the boundary layer, due to vanishing surface tension at supercritical pressure. The conditions of the experiment and the apparatus used are described (the Reynolds number at the exit nozzle was in the range of 1.7 to $5.8 \cdot 10^5$). The kinetic pressure and temperature profiles were measured at upper and mid-stream sections of the flow and the data are compared with the theoretical computations. The Prandtl turbulence number was so chosen that a phenomenological constant employed in the comparison of the results was about the same for the

Card 1/2

L 32185-66

ACC NR: AP6010859

kinetic and thermal profiles. It was found that under these conditions two density regimes were formed in the stream and the relative width of the cold nitrogen stream is smaller than the isothermal stream. Orig. art. has: 6 figures.

SUB CODE: 20/ SUBM DATE: 10Mar65/ ORIG REF: 003

Card 2/2

L 29331-66 EWP(m)/EWT(d)/EWT(l)/EWT(m)/T-2/EWP(f) WW/JW

ACC NR: AP6017839 SOURCE CODE: UR/0147/66/000/002/0137/0142

56
B

AUTHOR: Zhukova, L. A.; Makarov, I. S.; Khudenko, B. G.

ORG: none

TITLE: Mixing of gas jets at the wall

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1966, 137-142

TOPIC TAGS: rocket engine, gas dynamics jet, jet mixing

ABSTRACT: The mixing of gas jets is of great importance in the operation of reaction engines. This problem has been studied experimentally and a method was proposed for the approximate calculation of the velocity fields of the resulting gas jet. The test assembly consisted of a square duct with three uniformly spaced nozzles located in a plane parallel to the wall and one nozzle located at a greater distance from the wall but symmetrically with respect to the three nozzles. The total pressures of the jets near the wall and the velocities were measured as a function of distance from the nozzle outlets. The experiments were conducted at discharge velocities of 30, 50, and 80 m/sec, which were equal for all four nozzles. An interesting result was that the axial velocities of the jets changed with distance at different rates, although the discharge velocities, flow rate, nozzle size, and total momentum

UDC: 533.17

Card 1/2

L 29331-66

ACC NR: AP6017839

0

were equal for all four jets. Formulas for the axial and radial velocity profiles and for the velocity of the resulting flow were developed. Orig. art. has: 3 formulas and 7 figures. [PV]

SUB CODE: 21/ SUBM DATE: 19Apr65/ ORIG REF: 003/ OTH REF: 002/ ATD PRESS: 5010

Card 2/2 CC

L 40323-66 EWT(1)/EWP(m)

ACC NR: AP6017832 SOURCE CODE: UR/0147/66/000/002/0090/0099

48
B

AUTHOR: Khudenko, B. G.

ORG: none

TITLE: Deformation of the axes of plane-parallel jets with their mutual ejection

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1966, 90-98

TOPIC TAGS: turbulent jet, turbulent mixing, ideal fluid, approximation calculation, model, motion equation

ABSTRACT: A method of approximate calculation of the deformation of the axes of two plane-parallel turbulent gas jets as a result of their mutual ejection is proposed. The deformation of a jet of ideal fluid is considered. The coefficient of underpressure between the jets in the initial segment, the main segment, and where the segments join is determined. It is found that the underpressure in the region corresponding to the main segment increases rapidly with distance from the nozzle. The model which was adopted does not provide for a continuous variation in the coefficient of underpressure in a potential flow. The deformation of a gas jet is examined. The results of a comparison of experimental data from an earlier work of L. A. Zhukova, I. S. Makarov, and B. G. Khudenko (Smesheniye plosko-parallel'nykh turbulentnykh struy, IVUZ, Aviatsionnaya tekhnika, No. 4, 1964) with calculations by the proposed method are given (see Fig. 1). The theory is found to be in satisfactory

UDC: 533.17

L 40323-66

ACC NR: AP6017832

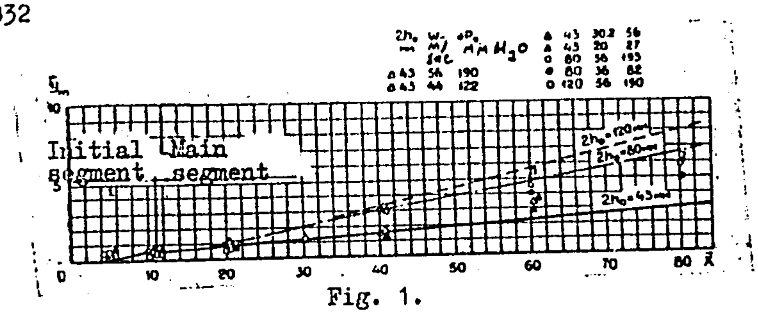


Fig. 1.

agreement with the experiment both qualitatively and quantitatively. Orig. art. has: 6 figures and 14 equations.

SUB CODE: 20/ SUBM DATE: 21Nov64/ ORIG REF: 002

Card 2/2

L 43691-66 EWT(m)/EWT(1)/EWP(m)

ACC NR: AP6018906 SOURCE CODE: UR/0170/66/010/006/0707/0711

AUTHOR: Makarov, I. S.; Khudenko, B. G.

47
B

ORG: Aviation Institute im. S. Ordzhonikidze, Moscow (Aviatsionnyy institut)

TITLE: A system of flat turbulent jets in a chamber

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 6, 1966, 707-711

TOPIC TAGS: turbulent jet, test chamber, flow structure

ABSTRACT: The results of experimental investigations of the turbulent jets in a chamber reveal the same specific pecularities of net flow as in infinite space: deformation of jet axes while mixing, the presence of extended and intense regions of back currents, etc. However, all these phenomena are intensified in the chamber. There is a possibility of affecting the structure of the net flow, decreasing its nonuniformity, and diminishing hydraulic losses in the chamber by changing the dimensions of lateral jets. Orig. art. has: 4 figures and 1 table. [Based on authors' abstract] [NT]

SUB CODE: 20/ SUBM DATE: 16Dec65/ ORIG REF: 002/

Card 1/1 UDC: 532.517.4

KHUDENKO, I.D., inzh.; ROZENBLAT, G.B., inzh.; RABINOVICH, I.B., inzh.

Industrial testing of the USB-1 coal plow. Ugol' Ukr. 4 no.12: 27-29 D '60. (MIRA 13:12)

(Coal mining machinery)

TYLKIN, M.A.; MEL'NICHENKO, G.P.; ZASPITSKIY, N.A.; KHUDENKO, M.A.; YUZVA, A.B.

Investigating service temperature conditions and the heat resistance of rolls on transverse-spiral rolling mills. Izv. vys. ucheb. zav.; chern. met. 7 no.11:124-130 '64. (MIRA 17:12)

1. Dneprodzerzhinskiy metallurgicheskiy zavod-vtuz i Dneprovskiy metallurgicheskiy zavod.

S/137/61/000/006/065/092
A006/A101

AUTHORS: Khudenko, M.A., Yuferov, V.M.

TITLE: Peculiarities in the transformation of low-carbon steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1961, 18-19, abstract 6Zh131 ("Sb. tr. Dneprodzerzh. vech. metallurg. in-ta", 1960, v. 2, 135 - 138)

TEXT: The authors studied the singling-out of excessive ferrite in low-carbon M 16C (M16S) steel. The possibility is shown of revealing the actual austenite grain in such steels, during abrupt cooling in water from the austenite state or cooling below Ac_3 (840°C), from the ferrite singled out along the borders.

L. Aleksandrov

[Abstracter's note: Complete translation]

Card 1/1

L 32044-65 EWT(m)/[illegible]/EWP(t) Pc-4/Pr-4 RM

ACCESSION NR: AR4045222 S/0081/64/000/012/M023/M023

SOURCE: Ref. zh. Khimiya, Abs. 12M158

AUTHOR: Matveyev, V. A.; Khudenko, M. A.

TITLE: Silicoorganic silicate cements

CITED SOURCE: Sb. Proiz-vo stroit. izdeliy iz plastmass. Minsk Vy. sh. shkola, 1963, 209-217

TOPIC TAGS: cement, silicate cement, acid resistant cement, silicoorganic cement, sodium fluosilicate, calcined clay, liquid glass, cement tensile strength, cement compressive strength, acid resistant concrete

TRANSLATION: The authors describe the preparative techniques and properties of two new cements based on silicoorganic silicate (SS): silicoorganic silicate acid-resistant cement (SSAC) and silicoorganic silicate calcined-clay cement (SSCC). SS is formed when liquid glass is mixed with silicoethyl ether in proportions of 1:1 by volume. The solid phase formed during mixing is SS, while the liquid phase is a disposable hydrolysate; the silica coefficient of the original

Card 1/2

L 32045-65

ACCESSION NR: AR4045212

liquid glass is 2.0-2.5, and the specific gravity is 1.27-1.30. The time required for the formation of SS is 90-95 minutes at 180 (without heating the reactor) and 30-40 minutes with heating to 600. SSAC is a finely dispersed powder consisting of SS (50%), an acid-resistant filler (quartz sand, andesite or some other acid-resistant material, 40%) and sodium fluosilicate (10% of the weight of SS). On mixing with water, SSAC forms a plastic paste which hardens to a rock-like state in air. After 3 days the compressive strength of a sample of SSAC is 350 kg/cm², the tensile strength is 30 kg/cm², the loading weight is 1500 kg/cc (sic) and the acid resistance meets the GOST requirements. SSAC can be used as a cement in the preparation of acid-resistant solutions and concretes, as well as in the manufacture of semifinished products from these materials. SSCC is a finely dispersed powder consisting of SS (50%), calcined clay or crushed brick (50%) and sodium fluosilicate (10% of the weight of SSCC). After 4 days' hardening in air, the compressive strength of SSCC is > 200 kg/cm² and the tensile strength is > 20 kg/cm². SSCC can be used as a cement in the manufacture of building materials and semifinished products of any desired size and shape by casting in a mold. V. Savel'yev.

SUB CODE: MT ENCL: 00

Card 2/2